IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Plaintiff, **v.** HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED, Defendant.	Civil Action No. 05-10990-DPW **PUBLIC VERSION**

HARMAN'S LOCAL RULE 56.1 STATEMENT OF UNDISPUTED FACTS SUPPORTING SUMMARY JUDGMENT THAT CLAIMS 1, 42 AND 45 OF THE '685 PATENT ARE INVALID UNDER 35 U.S.C. § 102(b) DUE TO PUBLIC USE

1. The patent application that matured into the '685 patent was filed on August 9, 1990. (Tab 1, '685 patent at cover page.)

A. Claim 1 Was Embodied In Systems Used By Fifty Different People, On Public Roads Around Boston, More Than One Year Before The Filing Date of the '685 Patent.

2. In the late 1980's, Jim Davis was a graduate student at MIT working in the MIT Media Lab under his faculty advisor, Chris Schmandt, who also served as the Director of the Speech Research Group. (Tab 2, Davis thesis, Acknowledgements.)

3. At least as early as April, 1988, Davis and Schmandt conceived of the project called the Back Seat Driver that involved automobile navigation using spoken directions, including the subject matter of claims 1 and 42 of the '685 patent. (Tab 3, MIT's June 16, 2006 Supplemental Response to Harman Interrogatory No. 13 noting "claims 1-4, 7-10, 14, 16, 19, 24, 27, 28, 42-44, 48, 55, and 57-58 were conceived at least as early as April 1988".)

4. By the end of April 1989, the Back Seat Driver was ([[**REDACTED**]] (Tab 4, filed under seal RITTMUELLER 108 [[**REDACTED**]] and RITTMUELLER 112 [[**REDACTED**]]); (Tab 5, MIT 938 ("The system has been running in prototype form since April 1989").)

5. The Back Seat Driver was a working system, on the road, on the public streets around Boston, at least as early as June 9, 1989. (Tab 6, MIT 1101-1102 at "Summary" (paper was presented at the June 6-9, 1989 International Conference of Consumer Electronics, in Rosemont, Illinois (Tab 1, at 3:63-66)); *see also* (Tab 7, MIT 30(b)(6) Schmandt Dep. at 9:4-20, 10:16-24, Tab 38, filed under seal, MIT 30(b)(6) Schmandt Dep. at 84:2-13); (Tab 11, "Synthetic Speech For Real Time Direction-Giving" ("1989 IEEE Back Seat Driver Paper") (footer noting "Manuscript received June 9, 1989").)

6. From May 1, 1989 through July 31, 1989, approximately 50 persons drove around Boston using MIT's Back Seat Driver system. (Tab 8, filed under seal, RITTMUELLER 173); *see also* (Tab 9, Davis Dep. at 86:1-91:15); (Tab 10, Schmandt Dep. at 183:13-184:3); (Tab 11, MIT 933 ("[a]t the time of this writing (June 1989) we have a working system on the road")); (Tab 11, MIT 936 ("[t]he Back Seat Driver is already working"); (Tab 5, MIT 938 ("Running in prototype form since April 1989").)

7. People who used or saw a working Back Seat Driver system on the public streets of Boston include ([[**REDACTED**]]). (Tab 39, filed under seal, Davis Dep. at 32:7-9; 74:23-75:4); (Tab 12, filed under seal, Rittmueller Dep. at 57:13-58:1 ([[**REDACTED**]]), 58:11-24, and 61:8-12); (Tab 40, filed under seal, Schmandt Dep. at 88:16-18, 97:21-24, 99:2-11); (Tab 13, filed under seal, Streeter Dep. at 116:11-23).

8. There is no evidence that anyone ever signed any confidentiality agreement regarding the 1989 uses of the Back Seat Driver system, and no reason to believe that anyone did so. (Tab 39, filed under seal, Davis Dep. at 76:17-77:5); *see also* (Tab 14, MIT's April 21, 2006 Responses to Harman's Requests for the Production of Documents and Things Nos. 33 and 47 ("MIT states that it has already produced or logged on its privilege log any documents in its possession, custody, or control responsive to this Request.").)

9. None of the more than 50 persons who used a Back Seat Driver system on public streets prior to August, 1989, signed a confidentiality agreement. (Tab 40, filed under seal, Schmandt Dep. at 88:22-89:18); (Tab 39, filed under seal, Davis Dep. at 76:17-77:5); (Tab 8, filed under seal, RITTMUELLER 173); (Tab 4, filed under seal, RITTMUELLER 108).

10. The subject matter of claim 1 was present in the Back Seat Driver prototype "running in prototype form since April 1989" and "successfully used by drivers who have never driven in Boston." (Tab 5, at MIT 00938 "The Back Seat Driver: Real Time Spoken Driving Instructions" ("VNIS '89 Back Seat Driver Paper").)

11. The subject matter of claim 1 of the '685 patent was embodied in the Back Seat Driver system used on the public streets in or around Boston in June, 1989. (Tab 7, MIT 30(b)(6) Dep. at 24:6-18.)

12. The subject matter of claim 1 of the '685 patent was embodied in every use of the Back Seat Driver system that occurred after June 1989. (Tab 7, MIT 30(b)(6) Dep. at 24:6-27:20 (addressing dependent claims, but, by definition, claims depending on claim 1 also embody claim 1).)

13. The Back Seat Driver continued to be driven around the public streets of Boston in July, 1989. (Tab 7, MIT 30(b)(6) Dep. at 9:4-20, 10:16-12:4); Tab 3, MIT's June 16, 2006 Supplemental Response to Harman Interrogatory No. 14); (Tab 8, filed under seal, RITTMUELLER 173).

14. The subject matter recited in claim 1 of the '685 patent was embodied in a Back Seat Driver system that was used on public streets around Boston between the end of June 1989 and August 4, 1989. (Tab 7, MIT 30(b)(6) Schmandt Dep. at 24:6-18); (Tab 3, MIT's June 16, 2006 Supplemental Response to Harman Interrogatory No. 14); (Tab 8, filed under seal, RITTMUELLER 173).

B. Claim 1 Was Reduced to Practice At Least As Early As June, 1989.

15. The subject matter recited in claim 1 of the '685 patent was reduced to practice at least as early as June 1989. (Tab 3, MIT's June 16, 2006 Supplemental Response to Harman Interrogatory No. 14.)

16. Prior to uses of the Back Seat Driver system on public streets in June and July 1989, Mr. Davis already knew that the Back Seat Driver would work for its intended purpose. (Tab 9, Davis Dep. at 168:7-18 (noting that Mr. Davis was first certain "[s]ometime prior to June of 1989").)

17. Prior to uses of the Back Seat Driver system on public streets in June and July 1989, Mr. Davis was already publicly claiming that the Back Seat Driver was a working system. (Tab 9, Davis Dep. at 168:7-18 (noting that "by June of 1989, I was already claiming that it was a working system.")); *see also* (Tab 6, MIT 1101-1102 (submitted prior to but published in June 1989, and noting that "[t]he Back Seat Driver is already working.").)

C. Claim 42 Was Embodied In Prototypes Operated By Drivers On Public Roads Around Boston, More Than One Year Before The Filing Date of the '685 Patent.

18. Claim 42 claims "[t]he automobile navigation system of claim 1 wherein each intersection in a route is classified into one type in a taxonomy of intersection types, and the disclosure generated in relation to each said intersection depends on its type." (Tab 1, '685 patent at 32:31-35.)

19. In June, 1989, MIT completed and submitted for publication in the proceedings of the IEEE Vehicle Navigation and Information Systems Conference a paper entitled "The Back Seat Driver: Real Time Spoken Driving Instructions." ("VNIS '89 Back Seat Driver Paper). (Tab 5, MIT 00938-42); *see also* (Tab 15, HAR 710168 (noting that "camera-ready" copies of submissions for VNIS '89 were due by June 26, 1989).)

20. The VNIS '89 Back Seat Driver Paper describes the Back Seat Driver prototype "running in prototype form since April 1989" and "successfully used by drivers who have never driven in Boston." (Tab 5, at MIT 00938.)

21. The working prototype system described in the VNIS '89 Back Seat Driver Paper included a taxonomy of intersection types, including the intersection types enter, exit, and fork and "[t]he items in the taxonomy of intersection types are called **acts**." (Tab 5, at MIT 00939 (emphasis in the original).)

22. The working prototype system described in VNIS '89 Back Seat Driver Paper considered every connection from one segment in a route to the next segment to be an intersection. (Tab 5, at MIT 00939.)

23. The working prototype system described in VNIS '89 Back Seat Driver Paper relied upon the taxonomy of intersection types to describe intersections. (Tab 5, at MIT 00939.)

24. In the working prototype system described in VNIS '89 Back Seat Driver Paper, a corresponding expert existed for each act, which experts "generate text which describes the intersection." (Tab 5, at MIT 00939.)

25. The "Direction Assistance" project was an earlier research project by Davis and Schmandt, that evolved into the "Back Seat Driver" project that led to the '685 patent. (Tab 10, Schmandt Dep. at 29:10-21); (Tab 30, STREETER 219); (Tab 6, MIT 1101-1102 (noting "The generation of easy [sic] followed natural descriptions requires more extensions. We added a number of new segment types to distinguish bridges, underpasses, tunnels, ***rotaries***, and ***access ramps***. All these extensions were done for an earlier route finding project" (emphasis added) (citing James R. Davis and Thomas Trobaugh, *Direction Assistance*, Technical Report 1, MIT Media Laboratory Speech Group, Dec. 1987)); (Tab 20, Davis website at http://www.econetwork.net/~jdavis/ (noting "In 1985 I entered the doctoral program at the Media Lab. My main pieces of work there were *Direction Assistance* (which gives

spoken driving instructions over the telephone) and *Back Seat Driver* (which does the same thing in a car while you're driving.)."); (Tab 16, filed under seal, MIT 06769-73 June 15, 1988 Back Seat Driver Research Proposal (noting the Direction Assistance as ([[**REDACTED**]]).)

26. By 1987, a Direction Assistance system was in public use at the Computer Museum in Boston, and another system and was also in public use as part of the Age of Intelligent Machines exhibit traveling across the United States. (Tab 17, Direction Assistance paper at "Introduction".)

27. The following subject matter was present in a Direction Assistance system that was in public use in 1987:

- A taxonomy of intersection types, including at least the following intersection types: enter, exit, and fork. (Tab 17, "Direction Assistance" by J. R. Davis and T. F. Trobaugh at page 9 (STREETER 00532).)
- Breaking down a route into a "sequence of *acts* to be taken in following the path." (Tab 17, at STREETER 00531.)
- "For each act…a corresponding routine which generates one to three sentences describing it." (Tab 17, at STREETER 00534.)
- A taxonomy of turns, a taxonomy of intersection types, and generating discourse in relation to each intersection depending on the type of intersection. (Tab 9, Davis Dep. at 229:4-11 (Q. As it was installed in 1987, did it have that ability? A. It had a taxonomy of turns, yes. Q. And a taxonomy of intersection types? A. Yes. Q. And the discourse generated in relation to each intersection depended on its type? A. That's correct.").)

D. Claim 42 Was Reduced to Practice At Least As Early As June 1989.

28. On April 27, 2006, MIT admitted that the subject matter of claim 42 was reduced to practice "at least as early as June 1989," noting that "[t]he details of the reduction to practice were fully described in answer to numerous questions to the inventors propounded during the deposition testimony" of the named inventors, and that "those [deposition] answers are herein incorporated by reference" into MIT's interrogatory

response. (Tab 18, MIT's April 27, 2006 First Supplemental Response to Interrogatory No. 14.)

29. On May 2, 2006, MIT provided a supplemental interrogatory response, again admitting that claim 42 was reduced to practice "at least as early as June 1989." (Tab 19, MIT's May 2, 2006 Second Supplemental Response to Interrogatory No. 14.) In this supplemental response, MIT cited to nearly 600 pages of documentation and nearly 60 pages of inventor deposition testimony to support its response.

30. Included within the documents MIT cited on May 2, 2006 as supporting its admission that claim 42 was reduced to practice "at least as early as June 1989" were MIT 933-937, MIT 938-42, MIT 1101-02, MIT 2245-54, MIT 2255-63 and MIT 2264-74. Each of these papers describes a working system at least as early as June 1989, and several describe a working system by that time that includes the subject matter of claim 42:

- MIT 00938 (VNIS '89 Back Seat Driver Paper) notes that "The system has been running in prototype form since April 1989 . . . and [t]his paper describes the strategies employed by the Back Seat Driver to successfully use speech." The system is described as relying on a taxonomy of acts, or intersection types. MIT 00938. The text generated depends on the intersection type. MIT 00939. (Tab 5.)

- MIT 02245 ("Abstract") notes that "[t]his paper describes the strategies employed by the Back Seat Driver to successfully use speech." MIT 02245. "The system has been running in prototype form since April 1989. It has been successfully used by drivers who have never driven in Boston." MIT 02246. The system is described in this document as relying on a taxonomy of acts, or intersection types. MIT 02247. The text generated depends on the intersection type. MIT 02248. (Tab 21.)

- MIT 02264 describes "Direction Assistance" as "an interactive program that provides spoken directions for automobile travel" and further describes its reliance on a taxonomy of acts, including the intersection types enter, exit and fork, and how text is generated accordingly for each act. MIT 02264, 68-70. (Tab 23.)

- MIT 02255 "A Voice Interface To A Direction Giving Program" describes Direction Assistance as "a program which provides high quality directions for driving between two points in the Boston area." MIT 02255. The Direction Assistance system is described as relying on "a sequence of actions." MIT 02260. (Tab 22.)

- MIT 00933 "Synthetic Speech for Real Time Direction-Giving, notes: "[a]t the time of this writing (June 1989) we have a working system on the road" and describing the system as generating "a series of travel segments…separated by decision points." MIT 00935. (Tab 11.)

- MIT 01101 ("Synthetic Speech For Real Time Direction-Giving") notes that "[t]he Back Seat Driver is already working in prototype form." (Tab 6.)

31. Included within the inventor testimony MIT cited on May 2, 2006 as supporting its interrogatory response that claim 42 was reduced to practice "at least as early as June 1989" were pages 81-82 and pages 228-229 of Davis' deposition transcript, which respectively discuss an article written in June, 1989 that describes the Back Seat Driver ("Synthetic Speech For Real Time Direction-Giving" (MIT 933-37) (Tab 11)), and the Direction Assistance program installed in the Boston Computer Museum in 1987, which included a taxonomy of intersection types used to generate discourse. (Tab 19, MIT's May 2, 2006 Second Supplemental Response to Interrogatory No. 14); (Tab 9, Davis Dep. at 81-82, 228-229).

32. On June 16, 2006, MIT amended its response to Interrogatory No. 14 to contend that the subject matter of claim 42 was reduced to practice on August 4, 1989. (Tab 3, MIT's June 16, 2006 Supplemental Response to Interrogatory No. 14.) The only additional evidence cited by MIT to support this change in position (beyond the evidence cited in its earlier response, which said claim 42 was reduced to practice "at least as early as June 1989") was Mr. Schmandt's 30(b)(6) deposition testimony. *Compare* (Tab 3, MIT's June 16, 2006 Supplemental Response to Interrogatory No. 14), *with* (Tab 19, MIT's May 2, 2006 Second Supplemental Response to Interrogatory No. 14).

33. During his 30(b)(6) deposition testimony, Schmandt testified as MIT's 30(b)(6) witness that he did not know when the subject matter of claim 42 was reduced to practice. (Tab 7, Schmandt 30(b)(6) Dep. at pp. 70-73) The reason Mr. Schmandt gave for not

knowing whether claim 42 was reduced to practice "at least as early as June 1989," as MIT has previously stated in its response to Interrogatory No. 14, was that "we have no documentation that tells us when those features were added to the system." (Tab 7, Schmandt 30(b)(6) Dep. at p. 72:6-13.) However, as shown above in SOF 30 and 31, documents cited by MIT demonstrate that the subject matter of claim 42 was reduced to practice at least as early as June 1989 (if not by April 1989) as admitted by MIT in its prior interrogatory responses.

E. Claim 45 Was Embodied In Prototypes Operated By Drivers On Public Roads Around Boston, More Than One Year Before The Filing Date of the '685 Patent.

34. Claim 45 claims "[t]he automobile navigation system of claim 1 wherein said discourse generated comprises a long description of an act given substantially before the act is to be performed and a short description given at the time the act is to be performed" (Tab 1, '685 patent at 32:46-50.)

35. The subject matter of claim 45 was present in a Back Seat Driver prototype "running in prototype form since April 1989" and "successfully used by drivers who have never driven in Boston." (Tab 5, VNIS '89 Back Seat Driver Paper (MIT 00938).) In particular, the VNIS '89 Back Seat Driver Paper describes "the strategies employed by the Back Seat Driver to successfully use speech" including, at least under MIT's construction, the subject matter of claim 45 of the '685 patent. (Tab 5, MIT 00938.) For example:

- This prototype system included the limitations of dependant claim 1 as discussed above.
- This working prototype further gave "instructions just prior to the action. It also gives instructions further in advance, if time permits." (Tab 5, VNIS '89 Back Seat Driver Paper (MIT 00940).)

- The prototype "gives the instructions twice, first in a detail, and later in a brief form" (Tab 5, VNIS '89 Back Seat Driver Paper (MIT 00938).)

F. Claim 45 Was Reduced to Practice At Least As Early as June 1989.

36. On April 27, 2006, MIT admitted that the subject matter of claim 45 was reduced to practice "at least as early as June 1989," again noting that "the details of the reduction to practice were fully described in answer to numerous questions to the inventors propounded during the deposition testimony" of the named inventors, and that "those [deposition] answers are herein incorporated by reference" into MIT's interrogatory response. (Tab 18, MIT's April 27, 2006 First Supplemental Response to Interrogatory No. 14.)

37. On May 2, 2006, MIT provided a supplemental interrogatory response, which re-iterated that claim 45 was reduced to practice "at least as early as June 1989." (Tab 19, MIT's May 2, 2006 Second Supplemental Response to Interrogatory No. 14.) In this supplemental response, MIT cited to nearly 600 pages of documentation and nearly 60 pages of inventor deposition testimony to support its response.

38. Included within the documents MIT cited on May 2, 2006 as supporting its interrogatory response that claim 45 was reduced to practice "at least as early as June 1989" were MIT 933-937, MIT 938-42, MIT 1101-02, and MIT 2245-54 Each of these papers describes the working prototype:

- MIT 00933-37 "Synthetic Speech for Real Time Direction-Giving, notes: "[a]t the time of this writing (June 1989) we have a working system on the road" (Tab 11, MIT 00935.)

- MIT 00938-42 (VNIS '89 Back Seat Driver Paper) "The Back Seat Driver: Real Time Spoken Driving Instructions" noting that "[t]he system has been running in prototype form since April 1989 . . . and [t]his paper describes the strategies employed by the Back Seat Driver to successfully use speech." This paper also notes ". . . the program gives the instruction twice, first in a detail, and later in a brief form." (Tab 5, MIT 00938; *see also* SOF 35.)

- MIT 01101-01102 "Synthetic Speech For Real Time Direction-Giving" noting that "[t]he Back Seat Driver is already working in prototype form." (Tab 6, MIT 01101-01102 at "Summary" (paper was presented at the June 6-9, 1989 International Conference of Consumer Electronics, in Rosemont, Illinois.)

- MIT 02245 "Abstract" noting that "[t]his paper describes the strategies employed by the Back Seat Driver to successfully use speech." MIT 02245. "If the time between instructions is long, the program gives the instruction twice, first in a detail and later in a brief form." MIT 02246. "The system has been running in prototype form since April 1989. It has been successfully used by drivers who have never driven in Boston." (Tab 21, MIT 02246.)

39. On June 16, 2006 MIT amended its response to Interrogatory No. 14 to contend that the subject matter of claim 45 was not reduced to practice until August 4, 1989. (Tab 3, MIT's June 16, 2006 Resp. to Interrog. No. 14). As true of claim 42, in support of its change of position, the only additional evidence cited by MIT (beyond that already cited in its earlier response, which said claim 45 was reduced to practice "at least as early as June 1989") was Mr. Schmandt's 30(b)(6) deposition testimony. (Tab 3, MIT's June 16, 2006 Resp. to Interrog. No. 14.) However, Mr. Schmandt testified under oath as MIT's 30(b)(6) that he did not know whether or not the subject matter of claim 45 was already reduced to practice as least as early as June 1989. (Tab 7, Schmandt 30(b)(6) Dep. at pp. 70-73.) The reason Mr. Schmandt gave for not knowing whether claim 45 was reduced to practice "at least as early as June 1989," as MIT has previously stated in its response to Interrogatory No. 14, was that "we have no documentation that tells us when those features were added to the system." (Tab 7, Schmandt 30(b)(6) Dep. at p. 72:6-13.) However, as shown above in Facts 35 and 38 above, documents do tell us that the subject matter of claim 45 was present in the system at least as early as June 1989.

G. None Of The Uses Of The Back Seat Driver System Were Subject To Any Confidentiality – To The Contrary, MIT's Policies And Goals Were To Publicize Them (And The Project) As Much As Possible, And MIT Did Exactly That.

40. At the time of the Back Seat Driver project, MIT had a written policy entitled ([[**REDACTED**]]) (Tab 24, filed under seal, MIT 1346); (Tab 32, Davis website at http://www.econetwork.net/~jdavis/Essays/history.html, page 3 of 4 (noting "The other important thing about the Media Lab is the constant focus on demonstrating one's work").)

41. At the time of the Back Seat Driver project, the MIT Media Lab had a written policy that ([[**REDACTED**]]) (Tab 25, filed under seal, MIT 1294.)

1. MIT Publicized the Back Seat Driver (and Its Uses) at a Conference in Early June, 1989.

42. (Tab 6, MIT 01101-02) is a true and correct copy of a printed article entitled "Synthetic Speech for Real time Direction-Giving," authored by Davis and Schmandt ("the June 1989 Back Seat Driver Paper").

43. The June 1989 Back Seat Driver Paper was presented at the June 6-9 International Conference on Consumer Electronics, in Rosemont, Illinois. (Tab 26, Information Disclosure Statement at p. 1.) The conference presentation and paper were not subject to any confidentiality obligation or restriction. (Tab 38, filed under seal, MIT 30(b)(6) Dep. at 84:2-19.)

44. The June 1989 Back Seat Driver Paper was made available and provided to attendees at the International Conference on Consumer Electronics, as pages 288-289 of a larger collection of presentation materials. (Tab 26, Information Disclosure Statement at p. 1); *see also* (Tab 6).

45. The June 1989 Back Seat Driver Paper notes that uses of the Back Seat Driver were taking place on the public streets of Boston. (Tab 6, MIT 1101-1102 at "Abstract," "Goals," and "Summary".)

46. The June 1989 Back Seat Driver Paper publicized several aspects of the system. (Tab 6, MIT 1101-1102.) Specifically:

- The June 1989 Back Seat Driver Paper described an automobile navigation system which produces spoken instructions to direct a driver of an automobile to a destination in real time. (Tab 6, MIT 1101-1102 at "Abstract," "Goals".)

- The June 1989 Back Seat Driver Paper described computing apparatus (a Symbolics Lisp computer) for running and coordinating system processes. (Tab 6, MIT 1101-1102 at "System" (describing Symbolics Lisp Machine).)

- The June 1989 Back Seat Driver Paper described driver input (a cellular telephone keypad) (Tab 6, MIT 1101-1102 at "System" (describing a keypad of a cellular phone that serves as the driver's control unit)).

- The June 1989 Back Seat Driver Paper described a map database connected to the computing apparatus which was extended to explicitly represent legal connectivity (Tab 6, MIT 1101-1102 at "Geographic Database," "System," and Figure 2) *see also* (Tab 6, MIT 1101-1102 at cited Reference [2] (the Direction Assistance paper) in this June 1989 Back Seat Driver Paper).

- The June 1989 Back Seat Driver Paper described a position sensing apparatus installed in the automobile and connected to the computing apparatus for providing the computing apparatus data for determining the automobile's current position. (Tab 6, MIT 1101-1102 at "System" (describing the localization unit built by NEC and the transmission of the position to the Lisp machine).)

- The June 1989 Back Seat Driver Paper described a location system connected to the computing apparatus for accepting data from said position sensing apparatus and for determining the automobile's current position relative to the map database. (Tab 6, MIT 1101-1102 at "System" (describing the localization unit built by NEC and the transmission of the position to the Lisp machine, and noting that map matching is used).)

- The June 1989 Back Seat Driver Paper described a route-finder connected to the computing apparatus for computing a route to the destination. (Tab 6, MIT 1101-1102 at "System" ("The base station computer does all route planning. . .").)

- The June 1989 Back Seat Driver Paper described a "real-time system" which generated instructions spoken by a speech synthesizer deciding what to say by

comparing the current position against the map. The system delivered "instructions at the proper place and in a timely manner." (Tab 6, MIT 1101-1102 at "System" and "Discourse Strategies".)

- The June 1989 Back Seat Driver Paper described "[t]he generation of easy followed natural descriptions" through the use of "a number of new segment types to distinguish bridges, underpasses, tunnels, rotaries, and access ramps," which was done from the earlier Direction Assistance project. (Tab 6, MIT 1101-1102 at "Geographic Database" and cited Reference [2].) As noted and supported in Fact No. 28, in the Direction Assistance project, intersections in a route were classified into one type in a taxonomy of intersection types, and the discourse generated in relation to each said intersection depended on its type. (Tab 17, Direction Assistance paper at pp. 8-10.)

- The June 1989 Back Seat Driver Paper described a speech generator connected to said discourse generator for generating speech from said discourse provided by said discourse generator. (Tab 6, MIT 1101-1102 at "System" ("Speech synthesis is performed in a commercial text-to-speech synthesizer (Dectak) cabled to the Lisp Machine") and "Discourse Strategies".)

- The June 1989 Back Seat Driver Paper described voice apparatus connected to said speech generator for communicating said speech provided by said speech generator to said driver. (Tab 6, MIT 1101-1102 at "System" ("Synthesized instructions to the driver are related via the second cellular link and a speaker phone in the car").)

47. MIT's own internal Technology Licensing Office forms confirm that ([[**REDACTED**]]).

(Tab 27, filed under seal, at MIT 5563); *see also* (Tab 28, filed under seal, MIT 5564.)

2. The Back Seat Driver Uses (and Information Related Thereto) Were Freely Disclosed to Several Third-Parties.

THE INDUSTRY PRESS

48. An article entitled "Prototype Guidance Unit Uses Synthetic Speech" was published in *Automotive Electronic News* on July 17, 1989. (Tab 29, HAR 710321 at 22.) This article discusses the "prototype guidance system" which "gives directions in real time" and includes interview comments from Schmandt, a block diagram provided by the MIT Media Lab, and an example of the text generated by the system at the time. (Tab 29, at 22. (noting that "[t]he system, called the Back Seat Driver, gives directions in real time" and that the "prototype guidance system" . . . "uses speech synthesis as a navigation aid.")

NEC

49. NEC, the corporate sponsor for the Back Seat Driver project, attended ([[**REDACTED**]]) with MIT, at which NEC ([[**REDACTED**]]) (Tab 40, filed under seal, Schmandt Dep. at 95:21-24; 96:1-11.)

50. ([[**REDACTED**]]) (Tab 40, filed under seal, Schmandt Dep. at 96:15-97:4.)

51. ([[**REDACTED**]]) (Tab 12, filed under seal, Rittmueller Dep. at 302:23-303:2 ([[**REDACTED**]])); *see also* (Tab 12, filed under seal, Rittmueller Dep. at 306:16-21 ([[**REDACTED**]]).)

52. Mr. Rittmueller was present at ([[**REDACTED**]]) (Tab 12, filed under seal, Rittmueller Dep. at 57:21-58:1([[**REDACTED**]]).)

BELLCORE

53. The MIT Media Lab had a relationship with Bellcore such that Bellcore employees ([[**REDACTED**]]) (Tab 13, filed under seal, Streeter Dep. at 15:10-17)

([[**REDACTED**]]) (Tab 13, filed under seal, Streeter Dep. at 15:18-19; 15:24-16:9.) ([[**REDACTED**]]) (Tab 13, filed under seal, Streeter Dep. at 15:24-16:9.) ([[**REDACTED**]]) (Tab 13, filed under seal, Streeter Dep. at 15:10-16:9, 16:17-17:1, 37:4-24.)

54. At least one Bellcore researcher, Lynn Streeter, received a detailed, 18-page thesis proposal describing the Back Seat Driver project, dated January 1, 1989. (Tab 30, STREETER 0218-235.)

55. ([[**REDACTED**]]) (Tab 13, filed under seal, Streeter Dep. at 15:10-13, 118:8-17.)

56. ([[**REDACTED**]]) (Tab 13, filed under seal, Streeter Dep. at 116:7-21.) ([[**REDACTED**]]) (Tab 13, filed under seal, Streeter Dep. at 15:10-16:9, 119:3-5.)

57. ([[**REDACTED**]]) (Tab 13, filed under seal, Streeter Dep. at 37:9-14; 37:21-24 (([[**REDACTED**]])) and (([[**REDACTED**]])).)

H. At Least Some Of The Public Uses Of The Back Seat Driver Were For Commercial Purposes.

58. MIT is a private corporation, with fiscal years and published financial data. (Tab 31, http://web.mit.edu/facts/financial.html.) For Fiscal Year 2006, "Sponsored research" accounted for 47.5% of MIT's "Operating Expenditures," or $1.03 billion.

59. MIT publishes a document entitled "How to Get Value from Media Lab Sponsorships" that notes that sponsors of the Media Lab are entitled to "visit, view, and discuss" "hundreds of working prototypes developed at the Lab," encourages sponsors to "visit the Lab during the year for individual discussions and demonstrations," notes that sponsors are given access to a sponsors-only website that "consolidates technical notes on research projects," and encourages sponsors to use "the Lab as a window to investments and start-ups" in order to get "an inside track on potential opportunities." (Tab 33, HAR 7152-53.)

60. ([[**REDACTED**]]) (Tab 34, filed under seal, MIT 1370); (Tab 35, filed under seal, MIT 1958).) MIT referred to NEC as ([[**REDACTED**]]) and one who was ([[**REDACTED**]]) (Tab 36, filed under seal, MIT 07392.)

61. In the 1988-89 time frame, MIT provided information about its research projects, including the Back Seat Driver project, as a way to generate interest from potential sponsors of the Media Lab. (Tab 13, filed under seal, Streeter Dep. at 16:17-19:6 (discussing Back Seat Driver reports and including (([[**REDACTED**]])).)

I. Much Of The Technology Used In The Back Seat Driver Was Already In The Public Domain In 1987-88.

1. Much of the Technology in the Back Seat Driver was Already in use in the Public Domain in 1987, by Virtue of Davis' Earlier Work, Called Direction Assistance.

62. The Direction Assistance System produced spoken instructions for directing a driver of an automobile to a destination. (Tab 17, Direction Assistance Paper at, *e.g.*, Abstract ("Direction Assistance is an interactive program that provides spoken direction for automobile travel within the Boston area. . . . The program has successfully directed newcomers through Boston")); *see also* (Tab 9, Davis Dep. at 220:12-221:15 (generally testifying that the Direction Assistance Paper accurately described what was in public use in the Computer Museum more than one year before the filing of the '685 patent) and 207:5-7).)

63. The Direction Assistance System included computing apparatus for running and coordinating system processes. (Tab 17, Direction Assistance paper at, *e.g.*, 1.1 Overview.)

64. The Direction Assistance System included input means (a telephone keypad) functionally connected to the computing apparatus for entering a desired destination. (Tab 17,

Direction Assistance Paper at "Abstract"); (Tab 22, Direction Assistance Voice Interface paper at pp. 1 and 3 ("The user can specify location by giving [] a street number and name . . ." using the telephone keypad.).)

65. The Direction Assistance System included a map database functionally connected to the computing apparatus and which distinguished between physical and legal connectivity. (Tab 17, Direction Assistance paper at, *e.g.*, pp. 2-3 "Databases"); (Tab 9, Davis Dep. at 218:22-219:2 and 221:9-222:6).

66. The Direction Assistance System included a route-finder functionally connected to the computing apparatus for accepting the desired destination from the input means, for consulting the map database, and for computing a route to the destination. (Tab 17, Direction Assistance paper at, *e.g.*, pp. 1 "Overview" and 6-7 "Route Finder"); (Tab 9, Davis Dep. at 225:5-23 (noting some uncertainty as to the particular type of route finder, but not that a route finder was present).)

67. The Direction Assistance System included a module functionally connected to the computing apparatus, for accepting the route from the route finder, and for composing discourse, including instructions for directing someone to their desired destination. (Tab 17, Direction Assistance paper at *e.g.*, pp. 1 "Overview" and 7-13 "Describer"); (Tab 9, Davis Dep. at 205:11-207:7); *see also* (Tab 40, filed under seal, Schmandt Dep. at 148:20-24 ([[**REDACTED**]])); (Tab 10, Schmandt Dep. at 268:3-5 ("Q: Did the Direction Assistance device generate discourse? A: Yes."), and 269:1-10 (discussing connections and composing instructions).

68. In the discourse generated by the Direction Assistance System, intersections in a route were classified into one type in a taxonomy of intersection types, and the discourse

generated in relation to each said intersection depended on its type. (Tab 17, Direction Assistance paper at pp. 8-10 ("natural instructions should be expressed in terms of geometry and types of streets. Consider the difference between a 'fork,' a 'T,' and an 'exit,' as shown in figure 7. All have the same topology - a branch in the road. But they must be described differently. The Describer's structure is a *tour*, which is a sequence of *acts* to be taken in following the path. . . . Figure 8 shows our taxonomy of acts . . . There are several types of TURN acts. The ENTER and EXIT acts refer to limited access roads. . . . We want to recognize entrances and exits, and we want to describe access ramps in different terms than other streets. A MERGE and a FORK are similar in that they are different actions that might be taken at the same intersection, depending upon the direction one is driving. . . . At a FORK on the other hand, there are at least two ways to go, though all are shallow turns. Note that a 'fork' onto an exit ramp is recognized as an EXIT. . . . Perhaps the most insidious feature of Boston's streets is the ROTARY. For those not familiar with the term, a rotary is a one way street in a circle. . . . Recognition of a rotary is trivial, but only because we label all rotary segments explicitly in the street map. An ORDINARY turn is anything not handled by one of the above cases.") and Figure 8 "Act Taxonomy"); (Tab 9, Davis Dep. at 205:11-207:7); *see also* (Tab 40, filed under seal, Schmandt Dep at 148:20-24 ([[**REDACTED**]])); (Tab 10, Schmandt Dep. at 268:3-5 ("Q: Did the Direction Assistance device generate discourse? A: Yes."), and 269:1-10 (discussing connections and composing instructions).)

69. The Direction Assistance System included a speech generator (a DecTalk speech synthesizer) that generated speech from the module that composed the discourse. (Tab 17, Direction Assistance paper at "Abstract"); (Tab 22, Direction Assistance Voice

Interface paper, at pp. 6-7 "The Narrator," "Difficulties of Speech Synthesis"); (Tab 9, Davis Dep. at 207:8-16).

70. The Direction Assistance System included voice apparatus (a speaker) functionally connected to the speech synthesizer for communicating the speech to the user. (Tab 17, Direction Assistance paper at "Abstract"); (Tab 22, Direction Assistance Voice Interface paper, at pp. 6-7 "The Narrator," "Difficulties of Speech Synthesis"); (Tab 9, Davis Dep. at 207:17-24).

2. The Location System and Speech Generator Used in the Back Seat Driver Were Already in the Public Domain by 1988.

71. The location system used in the Back Seat Driver project was a unit acquired by Davis and Schmandt from NEC. (Tab 40, filed under seal, Schmandt Dep. at 151:19-153:20); (Tab 6, MIT 1101-02 at "System" ("a localization unit built by NEC.")); (Tab 9, Davis Dep. at 93:12-20).

72. The NEC location system that was used in the Back Seat Driver is described in a 1988 publication. (Tab 37, Ono paper); (Tab 40, filed under seal, Schmandt Dep. at 151:19-153:20.)

73. Davis and Schmandt had nothing to do with the design or implementation of the location finding hardware for the Back Seat Driver system. (Tab 9, Davis Dep. at 93:17-20.)

74. The speech generator used in the Back Seat Driver project was an off-the-shelf speech synthesizer, called a DecTalk, that could be purchased at the time (at least as early as 1987) from Digital Equipment Corporation. (Tab 9, Davis Dep. at 93:21-94:22.)

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CERTIFICATE OF SERVICE

I hereby certify that this document filed through the ECF system will be sent electronically to the registered participants as identified on the Notice of Electronic Filing and paper copies will be sent to those indicated as non-registered participants on July 25, 2007.

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